Vaccine News and Previews Part 1

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Disclosures

- The speaker is a federal government employee with no financial interest or conflict with the manufacturer of any product named in this presentation
- The speaker will discuss the off-label use of Tdap and pneumococcal conjugate vaccines
- The speaker will not discuss a vaccine not currently licensed by the FDA

Objectives

- Increase provider knowledge regarding immunizations and the importance of promoting immunizations in the community.
- Explain at least one recent change to immunization recommendations from the Advisory Committee on Immunization Practices (ACIP)

Overview

- 2012 schedules
- Hepatitis B for adults with diabetes mellitus
- Rotavirus vaccine successes
- Tdap vaccine for children 7-10 years of age, pregnant women, and persons 65 years and older
- PCV13 supplemental dose

Immunization Recommendations

- The recommendations to be discussed are primarily those of the Advisory Committee on Immunization Practices (ACIP)
  - composed of 15 experts in clinical medicine and public health who are not government employees
  - provides guidance on the use of vaccines and other biologic products to the Department of Health and Human Resources, CDC, and the U.S. Public Health Service

www.cdc.gov/vaccines/recs/acip/

Schedule Changes for 2012

- Vaccination providers are being advised to use all three schedules and their respective footnotes together and not separately
- Redundant footnotes across 3 schedules placed on only 1 schedule

Changes to 2012 Childhood Schedule

- MCV4 purple bar extended to reflect licensure of MCV4-D (Menactra) use in children as young as age 9 months
- Wording change in HepA yellow bar - "Dose 1." A new yellow and purple bar added to reflect HepA recommendations for children aged 2 years and older
- Footnote Changes
  - HepB
  - Hib
  - RV
  - PCV
  - HepA
  - MMR
  - MCV4
  - Flu

2012 Childhood Schedule

Persons aged 0 through 6 years

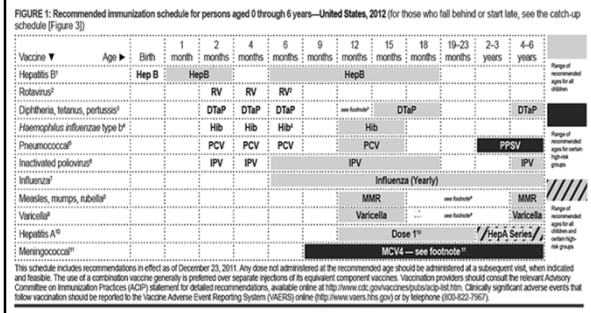


FIGURE 1: Recommended immunization schedule for persons aged 0 through 6 years—United States, 2012 (for those who fall behind or start late, see the catch-up schedule [Figure 3])

Vaccine ▼ Age ▶	Birth	1 month	2 months	4 months	6 months	9 months	12 months	15 months	18 months	19–23 months	2–3 years	4–6 years
Hepatitis B[1]	Hep B	HepB			HepB							
Rotavirus[2]			RV	RV	RV[2]							
Diphtheria, tetanus, pertussis[3]			DTaP	DTaP	DTaP		see footnote[3]	DTaP				DTaP
Haemophilus influenzae type b[4]			Hib	Hib	Hib[4]		Hib					
Pneumococcal[5]			PCV	PCV	PCV		PCV				PPSV	
Inactivated poliovirus[6]			IPV	IPV			IPV					IPV
Influenza[7]							Influenza (Yearly)					
Measles, mumps, rubella[8]							MMR	see footnote[8]				MMR
Varicella[9]							Varicella	see footnote[9]				Varicella
Hepatitis A[10]							Dose 1[10]				HepA Series	
Meningococcal[11]							MCV4 — see footnote[11]					

Range of recommended ages for all children

Range of recommended ages for certain high-risk groups

Range of recommended ages for all children and certain high-risk groups

This schedule includes recommendations in effect as of December 23, 2011. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at http://www.cdc.gov/vaccines/pubs/acip-list.htm. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) online (http://www.vaers.hhs.gov) or by telephone (800-822-7967).

www.cdc.gov/vaccines/recs/schedules/downloads/child/0-6yrs-schedule-pr.pdf

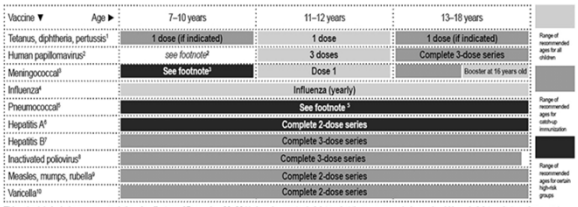
Changes to 2012 Adolescent Schedule

- Number of doses for each vaccine included
- Information regarding the recommended age (16 years) for MCV4 booster dose added
- Tdap vaccine recommendations for children aged 7 through 10 years updated
- Footnote Changes
  - HPV
  - VAR
  - IPV

2012 Adolescent Schedule

Persons aged 7 through 18 years

FIGURE 2: Recommended immunization schedule for persons aged 7 through 18 years—United States, 2012 (for those who fall behind or start late, see the schedule below and the catch-up schedule [Figure 3])



This schedule includes recommendations in effect as of December 23, 2011. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at http://www.cdc.gov/vaccines/pubs/acip-list.htm. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) online (http://www.vaers.hhs.gov) or by telephone (800-822-7967).

www.cdc.gov/vaccines/recs/schedules/downloads/child/7-18yrs-schedule-pr.pdf

Childhood Catch-up Schedule

FIGURE 3. Catch-up immunization schedule for persons aged 4 months through 18 years who start late or who are more than 1 month behind —United States • 2012

The figure below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. **Always use this table in conjunction with the accompanying childhood and adolescent immunization schedules (Figures 1 and 2) and their respective footnotes.**

Persons aged 4 months through 6 years					
Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to dose 2	Dose 2 to dose 3	Dose 3 to dose 4	Dose 4 to dose 5
Hepatitis B	Birth	4 weeks	8 weeks and at least 16 weeks after first dose; minimum age for the final dose is 24 weeks		
Rotavirus[1]	6 weeks	4 weeks	4 weeks[1]		
Diphtheria, tetanus, pertussis[2]	6 weeks	4 weeks	4 weeks	6 months	6 months[2]
Haemophilus influenzae type b[3]	6 weeks	4 weeks if first dose administered at younger than age 12 months 8 weeks (as final dose) if first dose administered at age 12–14 months No further doses needed if first dose administered at age 15 months or older	4 weeks[3] if current age is younger than 12 months 8 weeks (as final dose)[3] if current age is 12 months or older and first dose administered at younger than age 12 months and second dose administered at younger than 15 months No further doses needed if previous dose administered at age 15 months or older	8 weeks (as final dose) This dose only necessary for children aged 12 months through 59 months who received 3 doses before age 12 months	
Pneumococcal[4]	6 weeks	4 weeks if first dose administered at younger than age 12 months 8 weeks (as final dose for healthy children) if first dose administered at age 12–59 months or current age 24 through 59 months No further doses needed for healthy children if first dose administered at age 24 months or older	4 weeks if current age is younger than 12 months 8 weeks (as final dose for healthy children) if current age is 12 months or older No further doses needed for healthy children if previous dose administered at age 24 months or older	8 weeks (as final dose) This dose only necessary for children aged 12 months through 59 months who received 3 doses before age 12 months or for any child in high-risk group who received 3 doses at any age	
Inactivated poliovirus[5]	6 weeks	4 weeks	4 weeks	6 months[5] minimum age 4 years for final dose	
Meningococcal[6]	9 months	8 weeks[6]			
Measles, mumps, rubella[7]	12 months	4 weeks			
Varicella[8]	12 months	3 months			
Hepatitis A	12 months	6 months			

www.cdc.gov/vaccines/recs/schedules/downloads/child/catchup-schedule-pr.pdf

Adolescent Catch-up Schedule

Persons aged 7 through 18 years					
Tetanus, diphtheria[1] tetanus, diphtheria, pertussis[2]	7 years[2]	4 weeks	4 weeks if first dose administered at younger than age 12 months 6 months if first dose administered at 12 months or older	6 months if first dose administered at younger than age 12 months	
Human papillomavirus[3]	9 years	Routine dosing intervals are recommended[3]			
Hepatitis A	12 months	6 months			
Hepatitis B	Birth	4 weeks	8 weeks (and at least 16 weeks after first dose)		
Inactivated poliovirus[4]	6 weeks	4 weeks	4 weeks[4]	6 months[4]	
Meningococcal[5]	9 months	8 weeks[5]			
Measles, mumps, rubella[7]	12 months	4 weeks			
Varicella[8]	12 months	3 months if person is younger than age 13 years 4 weeks if person is aged 13 years or older			

www.cdc.gov/vaccines/recs/schedules/downloads/child/catchup-schedule-pr.pdf

Changes to 2012 Adult Schedules

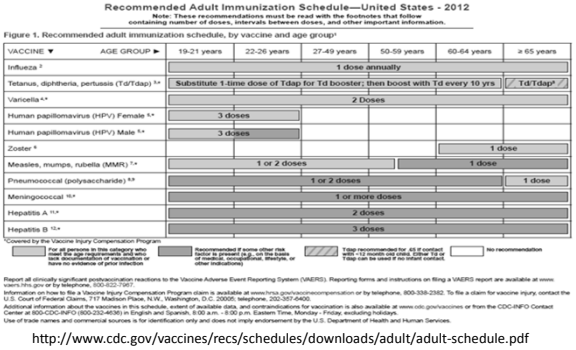
- Age-based schedule
  - 19-26 y/o age group split into 2 groups 19-21 and 22-26 related to HPV recommendations for males
  - Td/Tdap hashed bar for 65 years and older
  - HPV bar separated for females and males
- Risk-based schedule
  - MSM column added
  - Diabetes indication moved to same column as chronic kidney disease for HepB recommendation
  - Td/Tdap yellow bar extended to include pregnant women
  - HPV yellow bar separated for females and males.
    - Female bar: Extended to include HCP to clarify HPV indicated if HCP in recommended age group.
    - Male bar: Indicates vaccination through age 26 for HIV+, immunocompromised, or MSM. However, the age indication is through age 21 for males with or without these risk factors
  - Red contraindication bar added to legend
- Table summarizing precautions and contraindications added

Changes to 2012 Adult Schedules

- Footnote changes
  - A new footnote to links for the full ACIP vaccine recommendations and where to find additional information on specific vaccine recommendations for travelers
  - Flu
  - HPV
  - ZOS
  - MMR
  - PPSV23
  - MCV4/MPSV4
  - HepB

2012 Age-based Adult Schedule

Persons aged 19 years and older



Recommended Adult Immunization Schedule—United States - 2012

Note: These recommendations must be read with the footnotes that follow containing number of doses, intervals between doses, and other important information.

Figure 1. Recommended adult immunization schedule, by vaccine and age group[1]

VACCINE ▼ AGE GROUP ►	19-21 years	22-26 years	27-49 years	50-59 years	60-64 years	≥ 65 years
Influeza [2]	1 dose annually					
Tetanus, diphtheria, pertussis (Td/Tdap) [3,4]	Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs					Td/Tdap[5]
Varicella [6,*]	2 Doses					
Human papillomavirus (HPV) Female [7,*]	3 doses					
Human papillomavirus (HPV) Male [8,*]	3 doses					
Zoster [9]					1 dose	
Measles, mumps, rubella (MMR) [7,*]	1 or 2 doses				1 dose	
Pneumococcal (polysaccharide) [8,9]	1 or 2 doses					1 dose
Meningococcal [10,*]	1 or more doses					
Hepatitis A [11,*]	2 doses					
Hepatitis B [12,*]	3 doses					

[1]Covered by the Vaccine Injury Compensation Program

For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of prior infection

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

Tdap recommended for ≥1 if contact with <12 month old child. Either Td or Tdap can be used if no infant contact.

No recommendation

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at www.vaers.hhs.gov or by telephone, 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at www.hrsa.gov/vaccinecompensation or by telephone, 800-338-2382. To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.

Additional information about the vaccines in this schedule, extent of available data, and contraindications for vaccination is also available at www.cdc.gov/vaccines or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 8:00 a.m. - 8:00 p.m. Eastern Time, Monday - Friday, excluding holidays.

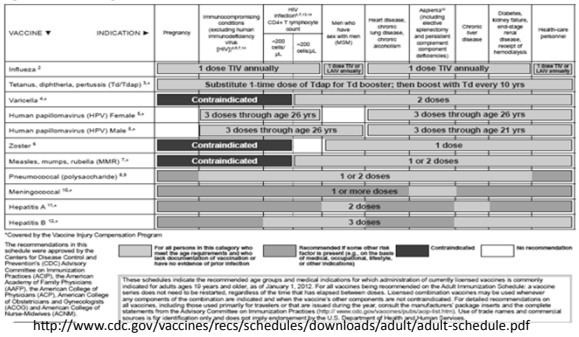
Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

http://www.cdc.gov/vaccines/recs/schedules/downloads/adult/adult-schedule.pdf

2012 Risk-Based Adult Schedule

Persons aged 19 years and older

Figure 2. Vaccines that might be indicated for adults based on medical and other indications[1]



*Covered by the Vaccine Injury Compensation Program

The recommendations in this schedule were approved by the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians (AAFP), the American College of Physicians (ACP), American College of Obstetricians and Gynecologists (ACOG) and American College of Nurse-Midwives (ACNM).

For all persons in this category who meet the age requirements and lack documentation of vaccination or have no evidence of prior infection

Recommended if some other risk factor is present (on the basis of medical, occupational, lifestyle, or other indications)

Contraindicated

No recommendation

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages 19 years and older, as of January 1, 2012. For all vaccines being recommended on the Adult Immunization Schedule, a vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (http://www.cdc.gov/vaccines/pubs/acip-list.htm). Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

http://www.cdc.gov/vaccines/recs/schedules/downloads/adult/adult-schedule.pdf

Adult Contraindications & Precautions

Tetanus, diphtheria, pertussis (Tdap) Tetanus, diphtheria (Td)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. **For Tdap only:** Encephalopathy (e.g., coma, decreased level of consciousness, or prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP, DTaP, or Tdap.	Moderate or severe acute illness with or without fever. GBS within 6 weeks after a previous dose of tetanus toxoid–containing vaccine. History of arthus-type hypersensitivity reactions after a previous dose of tetanus or diptheria toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid–containing vaccine. **For Tdap only:** Progressive or unstable neurological disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.
Varicella (Var)[2]	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy* or patients with HIV infection who are severely immunocompromised). Pregnancy.	Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product).[3,4] Moderate or severe acute illness with or without fever. Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; if possible, delay resumption of these antiviral drugs for 14 days after vaccination.
Human papillomavirus (HPV)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever. Pregnancy.
Zoster (Zos)	Severe allergic reaction (e.g., anaphylaxis) to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, or long-term immunosuppressive therapy* or patients with HIV infection who are severely immunocompromised). Pregnancy.	Moderate or severe acute illness with or without fever. Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; if possible, avoid use of these antiviral drugs for 14 days after vaccination.
Measles, mumps, rubella (MMR)[2]	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy* or patients with HIV infection who are severely immunocompromised). Pregnancy.	Moderate or severe acute illness with or without fever. Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product).[3,5] History of thrombocytopenia or thrombocytopenic purpura. Need for tuberculin skin testing.[1]
Pneumococcal polysaccharide (PPSV)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
Meningococcal, conjugate (MCV4) Meningococcal, polysaccharide (MPSV4)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.
Hepatitis A (HepA)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever. Pregnancy.
Hepatitis B (HepB)	Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.	Moderate or severe acute illness with or without fever.

http://www.cdc.gov/vaccines/recs/schedules/downloads/adult/adult-schedule.pdf

Hepatitis B

www.cdc.gov/vaccines/pubs/ACIP-list.htm#hepb
www.cdc.gov/vaccines/pubs/pinkbook/downloads/hepb.pdf
www.cdc.gov/vaccines/pubs/vis/downloads/vis-hep-b.pdf
www.immunize.org/askexperts/experts_hepb.asp

HepB Vaccine in Adults with DM

- Hepatitis B vaccination should be administered to unvaccinated adults with diabetes mellitus who are aged 19 through 59 years
- Hepatitis B vaccination may be administered at the discretion of the treating clinician to unvaccinated adults with diabetes mellitus who are aged ≥60 years

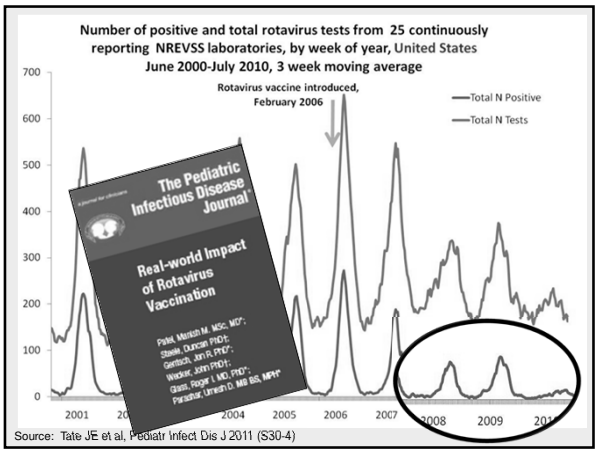
Test Your Knowledge

- A 5-year old received the birth dose of HepB vaccine followed by Pediarix at 2 mos., 4 mos., and 5 mos. 19 days of age (24 wks).

  —*Does this child need another dose of HepB vaccine?*

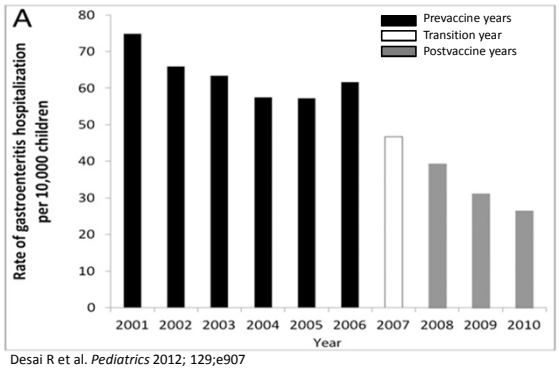
Rotaviirus

www.cdc.gov/vaccines/pubs/ACIP-list.htm#rotavirus
www.cdc.gov/vaccines/pubs/pinkbook/downloads/rota.pdf
www.cdc.gov/vaccines/pubs/vis/default.htm#rota
www.immunize.org/askexperts/experts_rota.asp



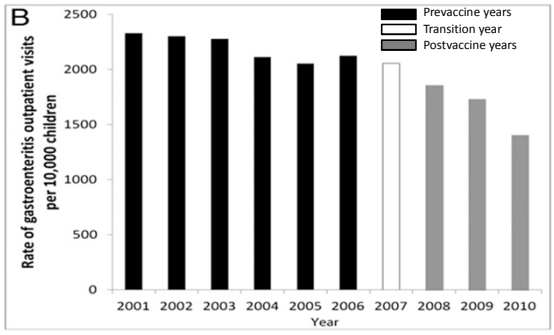
Source: Tate JE et al. Pediatr Infect Dis J 2011 (S30-4)

Annual rates of gastroenteritis-associated hospitalizations among AI/AN children <5 years of age



Desai R et al. *Pediatrics* 2012; 129;e907

Annual rates of gastroenteritis-associated outpatient visits among AI/AN children <5 years of age



Desai R et al. *Pediatrics* 2012; 129;e907

TABLE 4 Expected and Observed Gastrointestinal Hospitalizations and Rates (per 10 000) Among AI/AN Children <5 Years of Age, 2008–2010

	Fiscal Year 2008[a]			Fiscal Year 2009			Fiscal Year 2010		
	Expected Rate (95% CI)[b]	Observed Rate	Reduction, %	Expected Rate (95% CI)[b]	Observed Rate	% Reduction	Expected Rate (95% CI)[b]	Observed Rate	Reduction, %
Total	52 (48–56)	39	25	50 (45–55)	31	38	48 (42–53)	27	44
Gender									
Boy	58 (53–64)	41	29	56 (50–62)	38	32	53 (47–60)	31	42
Girl	45 (41–50)	38	16	43 (39–48)	25	42	42 (37–47)	22	48
Age group, y									
<1	194 (178–211)	140	28	184 (167–204)	115	38	176 (156–198)	103	41
1–4	24 (22–26)	17	29	23 (20–25)	14	39	21 (19–24)	12	43

CI, confidence interval.

[a] IHS Inpatient/Contract Health Services inpatient data fiscal years 2001–2009 National Patient Information Reporting System, Albuquerque, NM: IHS; 2011.

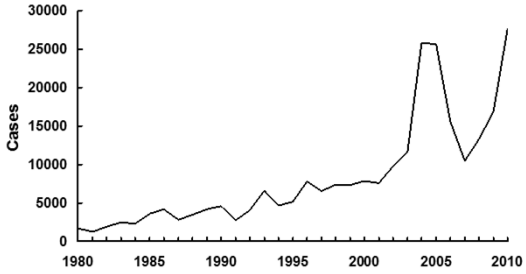
[b] Expected rates based upon prevaccine secular annual rate of decline of 4.4% ($P < .001$)

Desai R et al. *Pediatrics* 2012; 129;e907

Pertussis

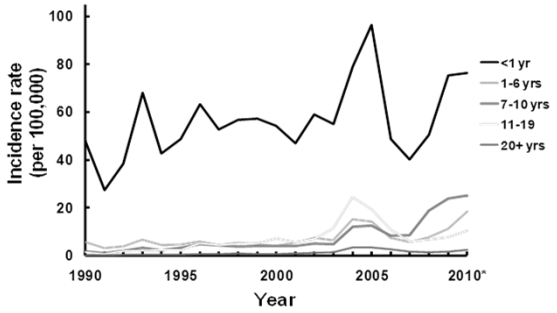
www.cdc.gov/vaccines/pubs/ACIP-list.htm#tdap
www.cdc.gov/vaccines/pubs/pinkbook/downloads/dip.pdf
www.cdc.gov/vaccines/pubs/pinkbook/downloads/tetanus.pdf
www.cdc.gov/vaccines/pubs/pinkbook/downloads/pert.pdf
www.cdc.gov/vaccines/pubs/vis/downloads/vis-dtap.pdf
www.cdc.gov/vaccines/pubs/vis/downloads/vis-td-tdap.pdf
www.immunize.org/askexperts/experts_per.asp

Pertussis - United States, 1980-2010



NNDSS data, 2010

Reported Pertussis Incidence by Age Group - 1990-2010*



NNDSS data, 2010

Reported Pertussis-related Deaths by Age Groups, U.S., 1980-2010*

Age-Group	1980-1989[1]	1990-1999[1]	2000-2010[2]
0-1 month	38	68	170
2-3 month	11	16	28
4-5 month	5	5	2
6-11 month	7	4	1
1-4 years	13	2	3
5-10 years	1	6	3
11-18 years	0	0	3
>18 years	1	2	11
Total	77±	103	221

*Provisional 2010 data ± Includes one case with unknown age

[1] Vitek CR et al. Pediatr Infect Dis J 2003; 22(7):628-34.

[2] National Notifiable Diseases Surveillance System, CDC,

Tdap

- Tdap reduces the risk of pertussis by 60% - 80%
- Both Tdap products currently approved for <u>one lifetime dose</u>
- Tdap approved ages
  - 10 years and older for Boostrix
  - 11 through 64 years for Adacel
- Neither brand of Tdap is approved by the FDA for children 7 years through 9 years and Adacel is not approved for adults 65 years or older

Wei SC et al. *Clin Infect Dis* 2010;51:315-21

Use of Tdap Among Children 7 Through 10 Years of Age

- Children 7 through 10 years of age who are "not fully immunized" against pertussis and who do not have a contraindication to pertussis vaccine should receive a single dose of Tdap*
- Either brand of Tdap may be used
- Do not administer Tdap at age 11-12 years of age for those who received Tdap at ages 7 through 10 years
- Revaccination issue still being evaluated

*off-label recommendation. MMWR 2011; 60 (No. 1):13-5

Tdap Recommendations for Children 7-10 Years of Age

- "Not fully immunized"
  - fewer than 4 doses of DTaP
  - 4 doses of DTaP and last dose was prior to age 4 years

*off-label recommendation. *MMWR* 2011; 60 (No. 1):13-5

Why Adolescents and Adults Need Pertussis Vaccine

- Pertussis cases increased in the late 1990s and early 2000s
- 2004 – 25,827 pertussis cases, highest recorded since 1959
  - 67% of cases among adolescents or adults
- Severe illness among young infants with pertussis
- Pertussis immunity wanes in 5-10 years

Source of Infection for Infants With Pertussis

- Household contact – 71%
  - Parent – 55% (mother 37%, father 18%)
  - Sibling – 16%
- Non-household contact – 29%
  - Aunt/uncle – 10%
  - Friend/cousin - 10%
  - Grandparent – 6%

N=44 infants ≤6 months of age. *Pediatr Infect Dis J* 2007;26(4):293-9.

Tdap Recommendations for Adolescents

- All adolescents should preferably receive Tdap at the 11 to 12 year-old preventive healthcare visit
- Persons 11 through 18 years of age who have not received Tdap should receive a dose followed by Td booster doses every 10 years
- Administer at the same visit as other indicated vaccines (e.g. MCV, HPV, influenza)

MMWR 2011; 60 (No. 1):13-5

New Tdap Recommendations for Adults*

- For adults 19 years of age and older who previously have not received a dose of Tdap, a single dose of Tdap should be administered
- When feasible use the FDA approved Tdap vaccine for adults 65 years and older Do not miss an opportunity to vaccinate – administer the vaccine that is available

*off-label recommendation. Approved by ACIP February 22, 2012

Tdap Recommendations for Pregnant Women

- Any woman who might become pregnant is encouraged to receive a single dose of Tdap
- Tdap should be administered to pregnant women who have not received a dose
- Vaccinate during third trimester or late in second trimester (after 20 weeks gestation)
- Alternatively, administer Tdap immediately postpartum

MMWR 2011;60(41):1424-6

Td-Tdap Interval Recommendation*

- Tdap can be administered regardless of the interval since the last tetanus and diphtheria containing vaccine
- ACIP concluded that while longer intervals between Td and Tdap vaccination could decrease the occurrence of local reactions, the benefits of protection against pertussis outweigh the potential risk for adverse events
- No booster doses of Tdap recommended at this time
- After receipt of Tdap, persons should continue to receive Td for routine booster vaccination

*off-label recommendation. MMWR: January 14, 2011 / 60(01);13-15

DTaP and Tdap Administration Errors

Error	Action
DTaP given to person 7 years of age or older	Count dose as valid
Tdap given to child younger than 7 years of age as DTaP #1, 2, or 3	Do not count dose; give DTaP now
Tdap given to child younger than 7 years of age as DTaP #4 or 5	Count dose as valid

Test Your Knowledge

- An 8-year-old patient arrives from Botswana without any immunization records. You decide to vaccinate against diphtheria, tetanus and pertussis.
  - —*Which vaccine would you give this child today and how many doses: DTaP or Tdap or Td?*
  - —*When this child turns 11 years old, do you give any more vaccine against Diphtheria, Tetanus and Pertussis?*
- A 14-year-old child received Td vaccine at age 13 years old (his first Td dose ever). He now presents to your office for his annual check up and you do not see evidence of him receiving Tdap vaccine in the past.
  - —*Can you give Tdap vaccine today?*

S. Pneumoniae

www.cdc.gov/vaccines/pubs/ACIP-list.htm#pcv
www.cdc.gov/vaccines/pubs/pinkbook/downloads/pneumo.pdf
www.cdc.gov/vaccines/pubs/vis/downloads/vis-pcv.pdf
www.cdc.gov/vaccines/pubs/vis/downloads/vis-ppv.pdf
www.immunize.org/askexperts/experts_pcv.asp
www.immunize.org/askexperts/experts_ppv.asp

ACIP Recommendations for PCV13 Supplemental Dose

- A single supplemental dose of PCV13 is recommended for children who have received a complete age-appropriate series of PCV7
  - – all children 14 through 59 months of age
  - – children 60 through 71 months of age with an underlying medical condition (including those who have already received a dose of PPSV)

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TABLE 2. Underlying medical conditions that are indications for pneumococcal vaccination among children, by risk group

Risk group	Condition
Immunocompetent children	Chronic heart disease*
	Chronic lung disease†
	Diabetes mellitus
	Cerebrospinal fluid leaks
	Cochlear implant
Children with functional or anatomic asplenia	Sickle cell disease and other hemoglobinopathies Congenital or acquired asplenia, or splenic dysfunction
Children with immunocompromising conditions	HIV infection
	Chronic renal failure and nephrotic syndrome
	Diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas and Hodgkin disease; or solid organ transplantation
	Congenital immunodeficiency§

Source: Advisory Committee on Immunization Practices, 2010.
* Particularly cyanotic congenital heart disease and cardiac failure.
† Including asthma if treated with high-dose oral corticosteroid therapy.
§ Includes B- (humoral) or T-lymphocyte deficiency; complement deficiencies, particularly C1, C2, C3, and C4 deficiency; and phagocytic disorders (excluding chronic granulomatous disease).

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ACIP Recommendations for PCV13 Supplemental Dose

- A single dose of PCV13 may be administered to children 6 through 18 *years* of age who are at increased risk for invasive pneumococcal disease*
  - functional or anatomic asplenia, including sickle cell disease
  - HIV infection and other immunocompromising conditions
  - cochlear implant
  - CSF leak

*off-label recommendation. *MMWR* 2010;59(No. RR-11):1-19

Test Your Knowledge

- A two-year-old male with sickle cell disease presents at your clinic. His immunization record is up-to-date and includes 4 valid doses of PCV7.
  - *Does this child need any further pneumococcal vaccination?*
  - *If yes, how many doses?*
  - *If more than one dose is indicated, what is the interval between doses?*

CDC Vaccines and Immunization Contact Information

- Telephone 800.CDC.INFO
  (for patients and parents)
- Email nipinfo@cdc.gov
  (for providers)
- Website www.cdc.gov/vaccines/
- Vaccine Safety www.cdc.gov/vaccinesafety/